

DETAILED ACTION

Response to Amendment

1. Amendment to the claims received 11/21/2011 has been entered. Claims 1, 4-7, 11-25, 28, 51, 54, 72, and 79 have been entered. Claims 3, 26-27, 53, and 78 have been canceled.
2. Cancellation of claims 26 and 53 have rendered the previous rejection under 112, second paragraph moot.
3. Cancellation of claims 3, 27 (incorrectly recited in previous office action as claim 37), and 78 have rendered the previous rejection moot.

Response to Arguments

4. Applicant's arguments filed 11/21/2011 have been fully considered but they are not persuasive.

Applicant argues with regards to Achten that the reference does not suggest a concentration of nitrile groups of 33-49% by weight which is a specific range within the much broader disclosed range of 10-50% of Achten. The examiner disagrees. Col. 2, Ln. 59-62 discloses a broadest range of 10-50%, with a narrower range of 15-39% and a narrowest range of 20-36%. While the argument might have been convincing with evidence that the particular range was important, if Achten only disclosed the broadest range, however, Achten also discloses a narrower range of 15-39% which overlaps the range of the claimed invention.

Applicant further argues that the use of HNBR is disclosed for “an adhesive base for untreated fabrics and reinforcing materials” and does not disclose such use in the body of a toothed belt”. The examiner disagrees and points to Col. 4, Ln. 46-51 which discloses possible uses of the disclosed invention of Achten including “toothed belts, V-belts” (Col. 4, Ln. 49).

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Claim Objections

5. Claim 72 is objected to because of the following informalities:

Claim 72 recites “said firs and second materials” This appears to be a typo and should instead read “said first and second materials”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1, 4-7, 11-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

8. Claim 1 recites “providing a toothed belt and adapting said toothed belt for use in substantially continuous contact with oil or partially immersed in oil”. This is new matter as the claim recites having a belt and then adapting this belt for use in oil, however the specification as originally filed only provides support for providing a belt which was, in its original construction adapted for use in oil, therefore this claim limitation constitutes new matter as the specification as originally filed does not provide support for the claimed subject matter.

9. Claims 1, 4-7, 11-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not

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described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

10. Claim 1 recites “providing a toothed belt and adapting said toothed belt for use in substantially continuous contact with oil or partially immersed in oil”. This is non-enabling as the specification provides support for the original construction of the belt, such as the materials used, provides the ability for the belt to be used in oil however, does not describe a way for adapting an already existing belt for use in oil; therefore the specification as originally filed does not provide sufficient disclosure to enable one of ordinary skill in the art to “provid[e] a toothed belt and adapting said toothed belt for use in substantially continuous contact with oil or partially immersed in oil” as required by independent claim 1.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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13. Claim 1, 4, 25, 28, 51, 54, 71-46 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and further in view of Achten (US 7,396,884 B2).

As per claim 1, Cicognani et al. discloses a method of providing a toothed belt (Fig) for use with oil (Col. 1, Ln. 29-40, Col. 2, Ln. 55-61), the method comprising:

Providing a toothed belt and adapting said toothed belt for use in substantially continuous contact with oil or partially immersed in oil (Col. 1, Ln. 29-40, Col. 2, Ln. 55-61), said belt comprising:

a body (1),

a plurality of teeth (3, Col. 2, Ln. 3-5) extending from a first surface of said body (Fig.), said teeth being coated by a first fabric (6), and

a plurality of resistant inserts (2) made from flexible and inextensible materials such as fiberglass, steel and the like (Col. 2, Ln. 1-2);

wherein said body comprises a main elastomeric material (col. 2, Ln. 13-14).

Cicognani et al. fails to explicitly disclose the resistant inserts comprise fibers produced from at least a first and second material, the first material being glass fibers and the second material being carbon fibers and the first material entirely covering the second material.

Akiyama et al. discloses a rubber reinforcing cord, to embed into rubber products such as rubber belts ([0001]), said reinforcing cord (1) comprising core (2) which may be twisted ([0033], [0034]) and a plurality of secondary strand (3) having a primary twist as well as the secondary strands and the core being twisted together (Fig. 2, [0037]) and the core is made from PBO and the secondary strands are made from glass fibers in an example ([0034]) however fiber

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strands of two or more kinds can be used having two different elastic moduli, including PBO, carbon fiber, glass fiber and aramid fiber ([0021], and wherein the higher-modulus fiber is disposed in the center and a plurality of lower-modulus strands are disposed around the higher-modulus fiber strand ([0022]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Cicognani et al. to include a first material wound around a second material such that the first material completely covers the second material, and the materials of being PBO fiber, carbon fiber, glass fiber or aramid fiber, as taught by Akiyama et al. for the purpose of improving flexural fatigue resistance.

Modified Cicognani et al. fails to explicitly disclose the elastomeric material being formed of a copolymer formed from a diene and a monomer containing nitrile groups in a percentage between 33 and 49 weight % of the final copolymer.

Acten discloses an adhesive base for reinforcing materials (Col. 1, Ln. 16-20) containing HNBR wherein the nitrile group content is in the range of 10 to 50 wt. % or preferably 15 to 39 wt. % (Col. 2, Ln. 47-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include the nitrile groups are in a percentage between 33 and 49 weight % of the final copolymer, or preferably 39 weight %, as taught by Acten, for the purpose of ensuring adhesion of the resistant inserts to the belt.

As per claims 25, Cicognani et al. discloses a timing control system for a motor vehicle (Col. 1, Ln. 4-5, Ln. 29-40) comprising at least one driving pulley, one driven pulley and a toothed belt (Col. 2, Ln. 54-58) adapted for use in substantially continuous contact with oil or

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partially immersed in oil, and materials for maintaining said toothed belt in an oil wet condition (Col. 2, Ln. 55-61, Col. 3, Ln. 12-20);

said belt comprising a body (1), and

one or more teeth (3, Col. 2, Ln. 3-5) extending from a first surface of said body (Fig.), said teeth being coated by a first fabric (6), and

a plurality of resistant inserts (2) made from flexible and inextensible materials such as fiberglass, steel and the like (Col. 2, Ln. 1-2);

Cicognani et al. fails to explicitly disclose the resistant inserts comprise fibers of at least a first and second material, the first and second materials being chosen from the group of glass fibers, aramid fibers, polyester fibers PBO fibers and carbon fibers and the first material entirely covering the second material.

Akiyama et al. discloses a rubber reinforcing cord, to embed into rubber products such as rubber belts ([0001]), said reinforcing cord (1) comprising core (2) which may be twisted ([0033], [0034]) and a plurality of secondary strand (3) having a primary twist as well as the secondary strands and the core being twisted together (Fig. 2, [0037]) and the core is made from PBO and the secondary strands are made from glass fibers in an example ([0034]) however fiber strands of two or more kinds can be used having two different elastic moduli, including PBO, carbon fiber, glass fiber and aramid fiber ([0021], and wherein the higher-modulus fiber is disposed in the center and a plurality of lower-modulus strands are disposed around the higher-modulus fiber strand ([0022]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Cicognani et al. to include a first material wound around a second material

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such that the first material completely covers the second material, and the materials of being PBO fiber, carbon fiber, glass fiber or aramid fiber, as taught by Akiyama et al. for the purpose of improving flexural fatigue resistance.

Modified Cicognani et al. fails to explicitly disclose the elastomeric material being formed of a copolymer formed from a diene and a monomer containing nitrile groups in a percentage between 33 and 49 weight % of the final copolymer.

Acten discloses an adhesive base for reinforcing materials (Col. 1, Ln. 16-20) containing HNBR wherein the nitrile group content is in the range of 10 to 50 wt. % or preferably 15 to 39 wt. % (Col. 2, Ln. 47-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include the nitrile groups are in a percentage between 33 and 49 weight % of the final copolymer, or preferably 39 weight %, as taught by Acten, for the purpose of ensuring adhesion of the resistant inserts to the belt.

As per claim 51, Cicognani et al. discloses a toothed belt (Fig) adapted for use in substantially continuous contact with oil or partially immersed in oil (Col. 1, Ln. 29-40, Col. 2, Ln. 55-61), the belt comprising:

a body (1),

a plurality of teeth (3, Col. 2, Ln. 3-5) extending from a first surface of said body (Fig.), said teeth being coated by a first fabric (6), and

a plurality of resistant inserts (2) made from flexible and inextensible materials such as fiberglass, steel and the like (Col. 2, Ln. 1-2);

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wherein said toothed belt is adapted to operate in substantially continuous contact with or partially immersed in oil (Col. 1, Ln. 29-40, Col. 2, Ln. 55-61).

Cicognani et al. fails to explicitly disclose the resistant inserts comprise fibers of at least a first and second material, the first and second materials being chosen from the group of glass fibers, aramid fibers, polyester fibers PBO fibers and carbon fibers and the first material entirely covering the second material.

Akiyama et al. discloses a rubber reinforcing cord, to embed into rubber products such as rubber belts ([0001]), said reinforcing cord (1) comprising core (2) which may be twisted ([0033], [0034]) and a plurality of secondary strand (3) having a primary twist as well as the secondary strands and the core being twisted together (Fig. 2, [0037]) and the core is made from PBO and the secondary strands are made from glass fibers in an example ([0034]) however fiber strands of two or more kinds can be used having two different elastic moduli, including PBO, carbon fiber, glass fiber and aramid fiber ([0021], and wherein the higher-modulus fiber is disposed in the center and a plurality of lower-modulus strands are disposed around the higher-modulus fiber strand ([0022]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Cicognani et al. to include a first material wound around a second material such that the first material completely covers the second material, and the materials of being PBO fiber, carbon fiber, glass fiber or aramid fiber, as taught by Akiyama et al. for the purpose of improving flexural fatigue resistance.

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Modified Cicognani et al. fails to explicitly disclose the elastomeric material being formed of a copolymer formed from a diene and a monomer containing nitrile groups in a percentage between 33 and 49 weight % of the final copolymer.

Acten discloses an adhesive base for reinforcing materials (Col. 1, Ln. 16-20) containing HNBR wherein the nitrile group content is in the range of 10 to 50 wt. % or preferably 15 to 39 wt. % (Col. 2, Ln. 47-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include the nitrile groups are in a percentage between 33 and 49 weight % of the final copolymer, or preferably 39 weight %, as taught by Acten, for the purpose of ensuring adhesion of the resistant inserts to the belt.

As per claim 72, Cicognani et al. discloses a method for providing a belt for use with oil comprising:

providing an oil-wet environment (Col. 2, Ln. 59-61),

providing a toothed belt to operate in said oil-wet environment (Col. 2, Ln. 55-61), said belt comprising:

a body (1),

a plurality of teeth (3, Col. 2, Ln. 3-5) extending from a first surface of said body (Fig.), said teeth being coated by a first fabric (6), and

a plurality of resistant inserts (2) made from flexible and inextensible materials such as fiberglass, steel and the like (Col. 2, Ln. 1-2);

wherein said toothed belt is adapted to operate in substantially continuous contact with or partially immersed in oil (Col. 1, Ln. 29-40, Col. 2, Ln. 55-61).

Cicognani et al. fails to explicitly disclose the resistant inserts comprise fibers of at least a first and second material, the first and second materials being chosen from the group of glass fibers, aramid fibers, polyester fibers PBO fibers and carbon fibers and the first material entirely covering the second material.

Akiyama et al. discloses a rubber reinforcing cord, to embed into rubber products such as rubber belts ([0001]), said reinforcing cord (1) comprising core (2) which may be twisted ([0033], [0034]) and a plurality of secondary strand (3) having a primary twist as well as the secondary strands and the core being twisted together (Fig. 2, [0037]) and the core is made from PBO and the secondary strands are made from glass fibers in an example ([0034]) however fiber strands of two or more kinds can be used having two different elastic moduli, including PBO, carbon fiber, glass fiber and aramid fiber ([0021], and wherein the higher-modulus fiber is disposed in the center and a plurality of lower-modulus strands are disposed around the higher-modulus fiber strand ([0022]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Cicognani et al. to include a first material wound around a second material such that the first material completely covers the second material, and the materials of being PBO fiber, carbon fiber, glass fiber or aramid fiber, as taught by Akiyama et al. for the purpose of improving flexural fatigue resistance.

Modified Cicognani et al. fails to explicitly disclose the elastomeric material being formed of a copolymer formed from a diene and a monomer containing nitrile groups in a percentage between 33 and 49 weight % of the final copolymer.

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Acten discloses an adhesive base for reinforcing materials (Col. 1, Ln. 16-20) containing HNBR wherein the nitrile group content is in the range of 10 to 50 wt. % or preferably 15 to 39 wt. % (Col. 2, Ln. 47-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include the nitrile groups are in a percentage between 33 and 49 weight % of the final copolymer, or preferably 39 weight %, as taught by Acten, for the purpose of ensuring adhesion of the resistant inserts to the belt.

As per claim 4, 28, 54 and 79, Akiyama et al. discloses the first material has a lower modulus with respect to the second material ([0022]).

As per claim 71, Cicognani et al. discloses the toothed belt is configured to replace a chain in a timing control system without any dimensional variations being made to the timing control system (Col. 1, Ln. 34-40).

As per claims 73 and 75, Cicognani et al. discloses the belt coming in contact with the belt, and a pump for use in circulating the oil, however fails to explicitly disclose the use of an oil spray or the application of such being at a rate of approximately 5.8 gallons/hr. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Cicognani et al. to include an oil spray and to apply said oil spray at a rate of approximately 5.8, as the use of such is a design choice of which one of ordinary skill in the art at the time of the invention would be capable of based on the system requirements.

As per claim 74, Cicognani et al. further discloses the oil-wet environment comprises an oil bath (Col. 2, Ln. 59-61).

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As per claim 76, Cicognani et al. further discloses the oil being at 140°C which converts to 284° F (Col. 3, Ln. 1-5).

14. Claim 5-7, 29-31, 55-57 and 80-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and Achten (US 7,396,884 B2) and further in view of Mashimo et al. (US 4,498,891).

Modified Cicognani et al. fails to explicitly disclose the second material occupies a surface between 15 and 75% (claims 5, 29, 55, 80) or preferably between 35 and 45 % (claims 6, 30, 56, 81) of the total surface of the body, and the resistant inserts have two twists in the same direction (claims 7, 31, 82, 57).

Mashimo et al. discloses a belt (Fig. 1, Fig. 2) having resistant inserts (16) being woven in the type of Lang's twist (Col. 2, Ln. 60-64) and occupying a surface between 35 and 45% of the total (Table 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani al. to include the second material occupies a surface of between 15 and 75% and between 35 and 45 % of the total surface of the body, and the resistant inserts have two twists in the same direction, as taught by Mashimo et al., for the purpose of providing stiffness to the belt.

15. Claims 11-14, 35-38, 58-61, and 86-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and Achten (US 7,396,884 B2) and further in view of Knutson (US 6,945,891).

As per claims 11-12, 35-36, 58-59 and 86-87 Akiyama et al. discloses the resistant inserts being treated with an RFL solution comprising a latex ([0027], [0032]). However, Modified

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Cicognani fails to disclose the latex selected to resist oils (claim 11, 35, 58, 86) which comprises an elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups (claim 12, 36, 59, 87).

Knutson discloses a power transmission belt (10) in which tensile fibers (18) of carbon are coated with an RFL composition (Col. 6, Ln. 8-23) wherein the RFL composition comprises a latex which comprises the copolymer HNBR (Col. 6, Ln. 45-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include the resistant inserts have been treated with an RFL comprising a latex which comprises an elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups, as taught by Knutson, for the purpose of ensuring adhesion of the resistant inserts to the belt.

As per claims 13-14, 37-38, 60-61 and 88-89, Modified Cicognani et al. fails to explicitly disclose the elastomeric material being formed of a copolymer formed from a diene and a monomer containing nitrile groups in a percentage between 33 and 49 weight % of the final copolymer.

Acten discloses an adhesive base for reinforcing materials (Col. 1, Ln. 16-20) containing HNBR wherein the nitrile group content is in the range of 10 to 50 wt. % or preferably 15 to 39 wt. % (Col. 2, Ln. 47-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include the nitrile groups are in a percentage between 33 and 49 weight % of the final copolymer, or preferably 39 weight %, as taught by Acten, for the purpose of ensuring adhesion of the resistant inserts to the belt.

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16. Claims 15-21, 22, 39-45, 50, 62-68, and 90-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and Achten (US 7,396,884 B2) and further in view of Osako et al. (US 7,056,249 B1).

As per claims 15, 17-18, 39, 41-42, 50, 62, 64-65, 90, and 92-93 Cicognani et al. further discloses the fabric is externally coated by a resistant layer wherein the resistant layer comprises an oil resistant elastomer (Col. 2, Ln. 6-10). Modified Cicognani et al. fails to explicitly disclose the resistant layer comprises a fluorinated elastomer, specifically polytetrafluoroethylene (claims 18, 42, 65, 93) in an amount between 101 and 150 parts per weight with the elastomeric material (claims 17, 41, 50, 64, 92), and a vulcanizing agent.

Osako et al. discloses a belt (10) having a fabric layer (24, 56) coated by a resistance layer (40) of polytetrafluoroethylene (Col. 6, Ln. 26-32) in an amount of 30 to 200 parts per weight of a first elastomeric material (36, Col. 6, Ln. 7-12, Ln. 43-46).

Osako et al. fails to explicitly disclose the use of a vulcanizing agent, however Osako et al. discloses the step of vulcanizing after the treatment of the fabric (Col. 8, Ln. 44-50), however it would have been known by one in the art that a vulcanizing agent could be used to speed up vulcanization.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include a resistant layer of polytetrafluoroethylene in an amount between 101 and 150 parts per weight of a first elastomeric material and a vulcanizing agent for the purpose of reducing friction.

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As per claims 16, 40, 63, and 91 Cicognani et al. discloses the belt body being made of an oil resistant elastomeric composition but fails to explicitly disclose the body comprises a mixture based on a second elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups.

Osako et al. further discloses the body (12) comprises a mixture based on a second elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups (Col. 8, Ln. 20-31, NBR- nitrile butadiene rubber).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to further include the body comprises a mixture based on a second elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups, as taught by Osako et al., for the purpose of selecting an appropriate material and properties for a chosen application of the belt as well as selecting a material having good heat and oil resistance.

As per claim 19-21, 43-45, 66-68, and 94-96, Osako et al. further discloses that for use in a toothed belt, the cloth layer can be provided on the back surface as well (Col. 4, Ln. 36-39) and the cloth layer for the back surface having the same configuration as that on the toothed surface.

17. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and Achten (US 7,396,884 B2) and further in view of Danhauer et al.

Modified Cicognani et al. fails to explicitly disclose the use of discrete fibers in the elastic material

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Danhauer et al. a belt (10) having a body (12, 14, 16) having a plurality of inserts (22) and the body comprising discrete fibers in the elastomeric material ([0026]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al., to include discrete fibers in the elastic material, as taught by Danhauer et al., for the purpose of reinforcing the belt.

18. Claims 22 and 69 and 97 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and Achten (US 7,396,884 B2) and Osako et al. (US 7,056,249 B1) and further in view of Danhauer et al.

Modified Cicognani et al. fails to explicitly disclose the use of discrete fibers in the elastic material

Danhauer et al. a belt (10) having a body (12, 14, 16) having a plurality of inserts (22) and the body comprising discrete fibers in the elastomeric material ([0026]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al., to include discrete fibers in the elastic material, as taught by Danhauer et al., for the purpose of reinforcing the belt.

19. Claims 23, 47 and 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and Achten (US 7,396,884 B2) and Osaka et al. (US 7,056,249 B1) and Danhauer et al. and further in view of Knutson (US 6,945,891).

Modified Cicognani et al. fails to explicitly disclose the fibers are present in an amount in weight between 0.5 and 15% with respect to said elastomeric material.

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Knutson et al. discloses a power transmission belt (10) having of discrete fibers in the elastomeric material (Col. 4, Ln. 7-25) in the range of about 0.5 to 20 phr with respect to the elastomeric material (Col. 4, Ln. 7-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include the fibers are present in an amount in weight between 0.5 and 15% with respect to said elastomeric material, as taught by Knutson et al., for the purpose of increasing strength of the belt.

20. Claims 24, 48, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and Achten (US 7,396,884 B2) and further in view of Nakajima et al. (US 5,306,213).

Modified Cicognani et al. fails to explicitly disclose the belt being treated with a polymer resistant to swelling between the tothing and the back side.

Nakajima et al. discloses a toothed belt (30) in which a rubber layer (14) being made of an oil-resistant rubber composition different from that of the belt body (12) in order to prevent swelling of the belt.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Cicognani et al. to include the belt treated with a polymer resistant to swelling, as taught by Nakajima et al., for the purpose of increasing the life of the belt.

21. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cicognani et al. (US 4,099,422) in view of Akiyama et al. (US 2004/0226641 A1) and Achten (US 7,396,884

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B2) and Nakajima et al. (US 5,306,213), and further in view of Hashimoto et al. (US 2004/0127316 A1).

Modified Welk et al. discloses all elements of the claimed invention as applied to claim 25 above, but fail to explicitly disclose a pad tensioner or a pad.

Hashimoto et al. discloses a pad tensioner (100, TL) and a pad (TG) for use in imparting tension on a timing belt of a power transmission system in a vehicle ([0001], [0008]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt power transmission system of Modified Welk et al. to include a pad or pad tensioner, as taught by Hashimoto et al., for the purpose of maintaining tension in the belt.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA MOMPER whose telephone number is (571)270-5788.

The examiner can normally be reached on M-F 8-5, first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on 571-272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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